X-BAR MOTIVATED

11 JANUARY
Our Roadmap

- A very brief look at categories
- The X–Bar architecture: structure and motivations
- The relationship between syntax and semantics
But first...How do we even know what’s a noun, verb, etc.?

The Novel Form Argument

(8)  a. If enough information is introduced with a novel word to enable the individual learning that word to recognize its category, then
b. The individual knows which arrangements it can grammatically combine in.
c. Hence, it must be category membership to which these processes refer.

(9) Many bloresnicks are grey.

(10) a. It ran bloresnick the tree.
b. He removed the long bloresnick
c. She finds Sammy bloresnick.
d. He made his face bloresnick.

If 9 is good, then only 10b is.
And of course, our ever-famous exemplar of the “Novel Form” argument

We can identify the categories of items based on form, function, and distribution.

'Twas brillig, and the slithy toves
Did gyre and gimble in the wabe:
All mimsy were the borogoves,
And the mome raths outgrabe.
"Beware the Jabberwock, my son!
The jaws that bite, the claws that catch!
Beware the Jubjub bird, and shun
The frumious Bandersnatch!"
He took his vorpal sword in hand:
Long time the manxome foe he sought --
So rested he by the Tumtum tree,
And stood awhile in thought.
And, as in uffish thought he stood,
The Jabberwock, with eyes of flame,
Came whiffling through the tulgey wood,
And burbled as it came!
One, two! One, two! And through and through
The vorpal blade went snicker-snack!
He left it dead, and with its head
He went galumphing back.
"And, has thou slain the Jabberwock?
Come to my arms, my beamish boy!
O frabjous day! Callooh! Callay!"
He chortled in his joy.

(from Through the Looking-Glass and What Alice Found There, 1872)
“…phrase structure rules can be stripped of a great deal of their information. Indeed, what is left is largely what the X–bar skeleton expresses and the categorical specification of non–arguments.” (Johnson 2011, p. 54)

- The positions of heads and phrases can be switched. For instance, in a verb–final language, we want the verb to come after the object in the VP.

**Turkish** – subject, object, verb
Müdür mektub-u imzala-d1.
director.nom letter–acc sign–past
‘The director signed the letter.’

- The positioning at the bar–level can be switched as well.
How does the X–Bar skeleton fit into the larger theory about language?

(33) The syntax of a sentence produces phrases, and the phonological and semantic groupings make use of these phrases.
The WHY...
In essence, the X–Bar model facilitates (a weaker stance) or makes possible (a stronger stance) the acquisition process by severely constraining the range of possible grammars.

“If every language learner is equipped with this X’ Theory, then they will converge on more or less the same $G_L$ when presented with the information that being in the environment of speakers of $L$ provides. If there are differences in the $G_L$s that learners converge on, these will trace back to different decisions these learners have made about the identity of $W$, $X$, $Y$, and $Z$ or how their linear order is determined. If the rest of a model that incorporates these constraints is correct, then, it should allow any language learner to pick out a $G_L$ very close to the $G_L$ giving shape to the speech in that learner’s environment.” [Johnson, p.4]

The syntacticians’ task, then, is to figure out the minutiae that the X–Bar skeleton represents and to the best of our ability, use this model to account for a variety of phenomena.

- While English is our base language, we’ll use cross–linguistic data to either make inferences about another language or to provide more concrete evidence in support of a hypothesis.
Bar Levels Inside of Noun Phrases

- We have evidence that noun phrases have three levels.
  - **NP:** This is the biggest unit. It includes everything that is inside of the noun phrase (e.g., determiners, adjectives, prepositional phrases, complementizer phrases.)
  - **N’** This is the middle level. It includes everything inside the noun phrase except the determiner.
  - **N** This is the smallest level. The noun is the head of the phrase.

- There is evidence that the part of the NP which excludes the determiner constitutes a constituent. We can test this using **one-replacement.** This usually sounds more natural if we are contrasting two things.
This professor in the red dress has tenure.
a. That one in the blue dress doesn’t. one = professor
b. That one doesn’t.
   one = professor in the red dress
c. That professor in the blue one doesn’t.
   one = dress
d. That professor in that one doesn’t.
   one = red dress

This will be revised to include DP.
More on Arguments, Adjuncts, and One–Replacement

a. I’ll listen to your long, careful discussion of it if you’ll listen to my short one.
   \( one = \) careful discussion of it

b. *I’ll listen to your long, careful discussion of it, if you’ll listen to my short one of it."
   \( one = \) careful discussion

c. I’ll listen to your long, careful discussion in class if you’ll listen to my short one in the office.
   \( one = \) careful discussion

(Johnson, Ch 2, EX 150)
More on Arguments, Adjuncts, and One-Replacement

(1)
a. The **demanding woman** with the red hat left and the **one** with the blue hat stayed.

b. The demanding **woman** with the red hat left and the considerate **one** with the blue hat stayed.

(2)
a. I will examine the long proof that language exists if you will examine the short one.

\[ \text{one} = \text{proof that language exists} \]

b. *I will examine the long proof that language exists if you will examine the one that it doesn’t.*

\[ \text{one} = \text{long proof} \]

c. I will examine the book on the shelf if you will examine the one on the table.

\[ \text{one} = \text{book} \] (based on Johnson 2001, Chapter 2, EX 123&124)

- Draw trees for 2a and 2c to illustrate Johnson’s point.
- Draw a tree showing what goes wrong with 2b.
Bar Levels Inside of Verb Phrases

- If NPs have discernible N’s, then we expect to find bar level projections in other phrases.
- Ellipsis and *do so* are anaphoric on V’s.
  
  a. Although Sally didn’t Δ Tuesday, she will dance Monday.
     \( \Delta = \text{dance} \)
  
  b. *Although Sally didn’t Δ Tuesday, she will remember Monday.*
     \( \Delta = \text{remember} \) [\textit{Remember} is transitive, so ellipsis can’t target just the verb. The verb and its object form a V’.]
  
  c. Although Kylia won’t Δ on the bus, she will hug me in the car.
     \( \Delta = \text{hug me} \)

(Johnson, Chapter 2, EX 147–148)
a. Although Sally should not Δ, Jerry must leave town.
   Δ=leave town
b. Because Jerry frantically read Aspects after dinner, Sally did Δ just before class.
   Δ=read Aspects
c. Although Sally can carelessly Δ, Jerry must carefully read Aspects.
   Δ=read Aspects
d. *Although Sally should not Δ Chicago, Jerry must leave New York.
   Δ=leave
e. *Although Sally did not Δ that she was tired, Jerry will say that she should sleep.
   Δ=say

(Johnson, Chapter 2, EX 117&118, I’ve slightly altered a couple of examples based on an earlier version of this reading.)
**Do so** anaphora delivers the same effect.

a. Jerry must leave town, but Sally mustn’t do so.  
   \textit{do so}=leave town
b. Jerry should eventually read \textit{Aspects}, and Sally should immediately do so.  
   \textit{do so}=read \textit{Aspects}
c. *Jerry must leave Chicago and Sally must do so New York.  
   \textit{do so}=leave
d. *Jerry must acknowledge that he will read \textit{Aspects} and Sally must do so that she will read \textit{Syntactic Structures}.  
   \textit{do so}=acknowledge

\textit{(Johnson, Chapter 2, EX 119–120)}
A Couple of New Phrases

- TP = IP
  - In many languages, tense and inflection are linked. That is, finite verbs show inflection but non–finite verbs do not.
    - Even inflection–poor English has this property. There’s no 3rd singular marker on infinitives.
    - *The professor expects the student to read complex syntactic papers.*

- DegP : Degree Phrase (discussed in Johnson p.36–40)
  - AdjP ⇒ Adj’  Adj’ ⇒ DegP Adj’
  - Sean is thoroughly happy that syntax is cool.
  - AdvP ⇒ Adv’  Adv’ ⇒ DegP Adv’
  - Sally very carefully spoke.

**NOTE:** We don’t need to be too picky about the distinction between an Adverb Phrase and a Degree Phrase.
The Relationship Between Structure and Meaning
“Grammatical” but uninterpretable.
- Category-selection (c-selection) succeeds.
- Semantic-selection (s-selection) fails.

Semantically anomalous sentences are constrained by the semantic selectional restrictions that heads place on their arguments.

Heads require that their arguments have particular semantic properties.

These properties are generally referred to as theta/thematic roles.
Some Theta Roles

- **Agent**
  The performer of an action.

- **Experiencer**
  Non-volitional participants of an action.

- **Theme/Patient**
  The person or thing that an action/activity is done to.

- **Source**
  The starting point for a movement or a transfer of possession.

- **Goal**
  The end point for a movement or a transfer of possession.

- **Location**
  The place where an action occurs.

- **Instrument**
  The thing used to accomplish an action.

- **Benefactor**
  The person or thing that benefits from someone else’s actions.

- **Proposition**
  A clausal argument.
Sometimes theta roles map to morphology

• Theta roles can interact with morphology.

• The case of a noun can depend on factors such as agentivity or volitionality.

• Here, the datives are experiencers.

**Hindi–Urdu**

Tusaar  kʰuš  huaa.
Tushar nom happy become
‘Tushar became happy.’

Tusaar–ko  kʰuʃii  huii.
Tushar–dat happiness happen
‘Happiness happened to Tushar.’

**Japanese**

Sensei–ni  eigo–ga  wakaru.
teacher–dat English–nom understands
‘The teacher understands English.’

Mary–ga  eigo–ga  yoku dekiru.
Mary–nom  English–nom well do.can.pres
‘Mary can speak English well.’

Theta roles can interact with morphology. The case of a noun can depend on factors such as agentivity or volitionality. Here, the datives are experiencers.
But sometimes it’s murky

(a) Við teljum frambjóðendurna vera frambærilega
we.nom believe candidates.the.acc be pretty good.acc
‘We believe the candidates to be pretty good.’

(b) Einum dómara sýndist þessar athugasemdir vera óréttlátar.
one.dat judge.dat understood these comments.nom be unfair.nom
‘One judge understood these comments to be unfair.’
More Technically: What’s Syntactic and What’s Semantic?
Complement vs. Argument

Complement (Syntactic)

- Complement is a structural position. The complement position is the position that is sister to the head of the phrase. An argument is semantically related to a head. It’s what some head requires in order to form a semantically coherent proposition.

Argument (Semantic)

- A phrase that is sitting in the complement position is necessarily an argument of the head BUT not all arguments occupy the complement position. We’ll see that with ditransitives, it’s impossible for both objects to occupy a complement position. It’s also impossible for subjects to occupy a complement position. Right now, our subjects are in the specifier of TP, but we’ll see motivations for having the subject start off in the specifier of VP and then move up to the specifier of TP.
Adjunct vs Modifier

Adjunct (Syntactic)
- Like complement, adjunct is a structural position. The adjunct position is the sister and daughter to a bar level.

Modifier (Semantic)
- The material in the adjunct position modifies (gives additional information about) the material that is contained inside of the bar level that it is sister to. Since a modifier is more semantically removed from the head of a phrase than an argument is, the adjunct position is more structurally distant from the head than the complement position is.

- The complement–adjunct/argument–modifier distinction isn’t always so clear cut. E.g., we’re accustomed to seeing Prepositional Phrases as in adjunct position, but it’s arguable that in sentences such as *She traveled to Reykjavík*, the PP is a complement. One necessarily travels somewhere.
- We’ve also seen PPs inside of Noun Phrases that are arguments and occupy the complement position.
Heads place particular requirements on their arguments. These requirements are both syntactic and semantic.

In *John ate disgusting store–bought cookies and John felt deep–rooted emotional pain*, both *ate* and *felt* have NP subjects and objects. The verbs have c–selected to NPs. But John is an agent of eating and an experiencer of feeling pain. Likewise, *disgusting store–bought cookies* and *deep–rooted emotional pain* are both NPs, but the former is something physically tangible and edible (even if disgusting) while the latter is not physically tangible.

And things get more complicated when we look at clausal complements.
Deny, say, and wonder all take clauses/sentences as their direct object arguments. All three verbs C(ategory)–select for an embedded clause.

However, these verbs have different S(emantic)–selection requirements. Deny takes a propositional complement; wonder takes a question complement; say takes either a proposition or a question.

What this pattern suggests is that in addition to being of the right syntactic category, a verb’s arguments have to also have the right semantic properties.

a. Martha denied that John has left.
   a.’ *Martha denied whether John has left.
   b. Martha said that John has left.
   b.’ Martha said whether John has left.
   c. *Martha wonders that John has left.
   c.’ Martha wonders whether John has left.

(Johnson Ch2, EX 143–144)
Some verbs c-select either a clause or an NP and both the clause and the NP have the same semantic properties.

a. John asked me what the time is/the time. \textit{Question}

b. I’ll assume (that) he’s intelligent/his intelligence. \textit{Proposition}

c. Bill couldn’t believe how hot it is/the heat. \textit{Exclamative}

(Johnson Ch2, EX 139)
But other verbs s–select for the same thematic types as we just saw, but c–select only clauses.

a. John wondered what the time was/*the time.  
   \textit{Question}

b. I’ll pretend that he’s intelligent/*his intelligence.  
   \textit{Proposition}

c. Bill complained how hot it was./*the heat.  
   \textit{Exclamative}
   (Johnson Ch2, EX 139)

\begin{itemize}
\item The point is that both c–selection (which is syntactic) and s–selection (which is semantic) both contribute to well–formedness.
\end{itemize}